INTERNATIONAL SEARCH REPORT

International Application No
PC[redacted] 03/05459

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H02P6/00 H02P6/14 G08C19/16 G08C19/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H02P G08C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CH 615 773 A (MICRO ELECTRIC AG) 15 February 1980 (1980-02-15) page 3, column 1, line 4-7,11-14,36-42; figure 1 page 3, column 2, line 44 -page 4, column 1, line 15; figure 2	1,2
Y	page 2, column 2, line 9-31; figures 1,2 page 3, column 1, line 4-20	3-10
Y	EP 1 077 523 A (MANNESMANN VDO AG) 21 February 2001 (2001-02-21) paragraph '0015!; figures 1,2	3-10
A	GB 683 152 A (VICKERS ELECTRICAL CO LTD) 26 November 1952 (1952-11-26) page 1, column 2, line 82 -page 2, column 1, line 29; figure 1	1-10

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

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Date of the actual completion of the international search	Date of mailing of the international search report
19 April 2004	27/04/2004

Name and mailing address of the ISA	Authorized officer
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 719 668 A (VICKERS ELECTRICAL CO LTD) 8 December 1954 (1954-12-08) page 2, column 1, line 19-46; figure 1	1-10
A	US 4 706 456 A (DURHAM LA MOYNE W ET AL) 17 November 1987 (1987-11-17) column 6, line 33-44; figure 1	6

INTERNATIONAL SEARCH REPORT

[redacted]mation on patent family members

Inter[redacted]pplication No
PC[redacted]B 03/05459

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
CH 615773	A	15-02-1980	CH	615773 A5	15-02-1980
EP 1077523	A	21-02-2001	DE	19938678 A1	15-02-2001
			EP	1077523 A2	21-02-2001
GB 683152	A	26-11-1952	NONE		
GB 719668	A	08-12-1954	NONE		
US 4706456	A	17-11-1987	CA	1283191 C	16-04-1991
			DE	3531517 A1	17-04-1986
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			GB	2203267 A ,B	12-10-1988
			JP	61074903 A	17-04-1986
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CLAIMS:

1. A rotating electrical machine comprising:

a housing;

a shaft mounted rotatably within the housing;

a rotor fixed to the shaft and providing a magnetic field;

a stator positioned about the rotor within the housing and having a winding;

a switch mounted with the housing and having a first position for allowing current in one direction through the winding and a second position for allowing current in an opposite direction through the winding;

a mechanical activator movable by the shaft and acting on the switch so as to move it between the first and second positions when the winding is so aligned that current-inducing effects of the magnetic field on the winding are at or near a minimum.

2. A rotating electrical machine comprising:

a housing;

a shaft mounted rotatably within the housing;

a rotor fixed to the shaft and having a plurality of poles made of ferromagnetic material;

a stator positioned about the rotor within the housing and having a winding;

a switch mounted within the housing and having a first position for allowing current in one direction through the winding and a second position for allowing current in an opposite direction through the winding;

a mechanical activator movable by the shaft and acting on the switch so as to move it between the first and second positions.

3. The electrical machine of claims 1 or 2 wherein the switch has a third position for not allowing current through the winding, and the mechanical activator moves the switch to the third position between the first and second positions.

4. The electrical machine of any one of claims 1 to 3 wherein the mechanical activator comprises a cam mounted about the shaft and a cam follower communicating with the cam and with the switch.

5. The electrical machine of claim 4 wherein the cam has four portions for moving the switch to the first position for 1/6th of a cycle and then to the third position for 1/3rd of the cycle, and then to the second position for